

D:CHRISTOPHER P. HARRIS COMPANY:TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP



UNITED STATES PATENT AND TRADEMARK OFFICE

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To: Name: CHRISTOPHER P. HARRIS
 Company: TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP
 Fax Number: 12166214072
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 Voice Phone: 571-272-3350

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**UNITED STATES PATENT AND TRADEMARK OFFICE**UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

*700448267A

OCTOBER 18, 2010

PTAS

CHRISTOPHER P. HARRIS
TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP
1300 EAST NINTH STREET, SUITE 1700
CLEVELAND, OH 44114UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENTTHE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF
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PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE,
MAIL STOP: ASSIGNMENT SERVICES BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 10/15/2010

REEL/FRAME: 025137/0960

NUMBER OF PAGES: 7

BRIEF: MERGER (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

NORTHROP GRUMMAN SPACE & MISSION
SYSTEMS CORP.

DOC DATE: 12/11/2009

ASSIGNEE:

NORTHROP GRUMMAN SYSTEMS
CORPORATION
1840 CENTURY PARK EAST
LOS ANGELES, CALIFORNIA
USA
90067-2199

SERIAL NUMBER: 10100203

FILING DATE: 03/19/2002

PATENT NUMBER:

ISSUE DATE:

TITLE: METHOD AND APPARATUS FOR PRECISION WAVELENGTH STABILIZATION IN
FIBER OPTIC COMMUNICATION SYSTEMS USING AN OPTICAL TAPPED DELAY LINE

D:CHRISTOPHER P. HARRIS COMPANY:TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP

025137/0960 PAGE 2

SERIAL NUMBER: 07604255
PATENT NUMBER: 5079555
TITLE: SEQUENTIAL IMAGE SYNTHESIZER

FILING DATE: 10/29/1990
ISSUE DATE: 01/07/1992

SERIAL NUMBER: 07806697
PATENT NUMBER: 5202776
TITLE: TIME DELAY BEAM FORMATION

FILING DATE: 12/12/1991
ISSUE DATE: 04/13/1993

SERIAL NUMBER: 08032696
PATENT NUMBER: 5384573
TITLE: IMAGE SYNTHESIS USING TIME SEQUENTIAL HOLOGRAPHY

FILING DATE: 03/17/1993
ISSUE DATE: 01/24/1995

SERIAL NUMBER: 08387414
PATENT NUMBER: 5623360
TITLE: TIME DELAY BEAM FORMATION

FILING DATE: 02/13/1995
ISSUE DATE: 04/22/1997

SERIAL NUMBER: 09687029
PATENT NUMBER: 6608721
TITLE: OPTICAL TAPPED DELAY LINE

FILING DATE: 10/13/2000
ISSUE DATE: 08/19/2003

SERIAL NUMBER: 10012049
PATENT NUMBER: 6735346
TITLE: HD FOURIER TRANSFORMS FOR IRREGULARLY SAMPLED DATA

FILING DATE: 12/11/2001
ISSUE DATE: 05/11/2004

SERIAL NUMBER: 10051334
PATENT NUMBER: 7062174
TITLE: WAVELENGTH DIVISION MULTIPLEXING ADD-DROP MULTIPLEXER USING AN OPTICAL TAPPED DELAY LINE

FILING DATE: 01/22/2002
ISSUE DATE: 06/13/2006

SERIAL NUMBER: 09766151
PATENT NUMBER: 7130292
TITLE: OPTICAL PROCESSOR ENHANCED RECEIVER ARCHITECTURE (OPERA)

FILING DATE: 01/19/2001
ISSUE DATE: 10/31/2006

SERIAL NUMBER: 10199495
PATENT NUMBER: 7509048
TITLE: METHOD AND APPARATUS FOR OPTICAL SIGNAL PROCESSING USING AN OPTICAL TAPPED DELAY LINE

FILING DATE: 07/22/2002
ISSUE DATE: 03/24/2009

SERIAL NUMBER: 10715824
PATENT NUMBER: 7720226
TITLE: PRIVATE AND SECURE OPTICAL COMMUNICATION SYSTEM USING AN OPTICAL TAPPED DELAY LINE

FILING DATE: 11/19/2003
ISSUE DATE: 05/18/2010

SERIAL NUMBER: 10051229
PATENT NUMBER: 7756424
TITLE: OPTICAL CDMA COMMUNICATIONS SYSTEM USING OTDC DEVICE

FILING DATE: 01/22/2002
ISSUE DATE: 07/13/2010

SERIAL NUMBER: 11346566
PATENT NUMBER: 7768709
TITLE: LONG TIME APERTURE OPTICAL TAPPED DELAY LINE

FILING DATE: 02/03/2006
ISSUE DATE: 08/03/2010

D:CHRISTOPHER P. HARRIS COMPANY:TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP

025137/0960 PAGE 3

MARY BENTON, EXAMINER
ASSIGNMENT SERVICES BRANCH
PUBLIC RECORDS DIVISION

J:CHRISTOPHER P. HARRIS COMPANY:TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP

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Form PTO-1595 (Rev. 03-09)

OMB No. 0651-0027 (exp. 03/31/2009)

10/15/2010
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PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

1. Name of conveying party(ies)

Northrop Grumman Space & Mission Systems Corp.

Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No

3. Nature of conveyance/Execution Date(s):

Execution Date(s): 12/11/2009

☐ Assignment☒ Merger☐ Security Agreement☐ Change of Name☐ Joint Research Agreement☐ Government Interest Assignment☐ Executive Order 9424, Confirmatory License☐ Other

2. Name and address of receiving party(ies)

Name: Northrop Grumman Systems Corporation

Internal Address:

Street Address: 1840 Century Park East

City: Los Angeles

State: California

Country: USA Zip: 90067-2199

Additional name(s) & address(es) attached? ☐ Yes ☒ No

4. Application or patent number(s):

☐ This document is being filed together with a new application.

A. Patent Application No.(s)

B. Patent No.(s)

SEE ATTACHED

Additional numbers attached? ☒ Yes ☐ No

5. Name and address to whom correspondence concerning document should be mailed:

Name: Christopher P. Harris

Internal Address: Tarolli, Sundheim, Covell & Tummino LLP

Street Address: 1300 East Ninth Street, Suite 1700

City: Cleveland

State: OH Zip: 44114

Phone Number: 216.621.2234 Ext. 104

Fax Number: 216.621.4072

Email Address: charris@tarolli.com

6. Total number of applications and patents involved: 13

7. Total fee (37 CFR 1.21(h) & 3.41) \$570.00

☒ Authorized to be charged to deposit account☒ Enclosed☐ None required (government interest not affecting title)

8. Payment Information

Deposit Account Number 20-0090

Authorized User Name Christopher P. Harris

9. Signature:

/Christopher P. Harris/ C.A

Signature

15 October 2010

Date

Christopher P. Harris
Name of Person SigningTotal number of pages including cover
sheet, attachments, and documents:

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OCT-15-2010 14:15 FROM 2166214072

TO 15712730140

P.02

Applications:**10100203****Patents:****5079555****5202776****5384573****5623360****6608721****6735346****7062174****7130292****7509048****7720226****7756424****7768709**

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Form PTO-1595 (Rev. 03-09)
OMB No. 0651-0027 (exp. 03/31/2009)

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United States Patent and Trademark Office

RECORDATION FORM COVER SHEET PATENTS ONLY	
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1. Name of conveying party(ies) Northrop Grumman Space & Mission Systems Corp. Additional name(s) of conveying party(ies) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Name and address of receiving party(ies) Name: <u>Northrop Grumman Systems Corporation</u> Internal Address: _____ Street Address: <u>1840 Century Park East</u> City: <u>Los Angeles</u> State: <u>California</u> Country: <u>USA</u> Zip: <u>90067-2199</u> Additional name(s) & address(es) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. Nature of conveyance/Execution Date(s): Execution Date(s): <u>12/11/2009</u> <input type="checkbox"/> Assignment <input checked="" type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input type="checkbox"/> Joint Research Agreement <input type="checkbox"/> Government Interest Assignment <input type="checkbox"/> Executive Order 9424, Confirmatory License <input type="checkbox"/> Other _____	4. Application or patent number(s): <input type="checkbox"/> This document is being filed together with a new application. A. Patent Application No.(s) SEE ATTACHED B. Patent No.(s) Additional numbers attached? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Name and address to whom correspondence concerning document should be mailed: Name: <u>Christopher P. Harris</u> Internal Address: <u>Tarolli, Sundheim, Covell & Tummino LLP</u> Street Address: <u>1300 East Ninth Street, Suite 1700</u> City: <u>Cleveland</u> State: <u>OH</u> Zip: <u>44114</u> Phone Number: <u>216.621.2234 Ext. 104</u> Fax Number: <u>216.621.4072</u> Email Address: <u>charris@tarolli.com</u>	6. Total number of applications and patents involved: <u>13</u> 7. Total fee (37 CFR 1.21(h) & 3.41) \$ <u>520.00</u> <input checked="" type="checkbox"/> Authorized to be charged to deposit account <input checked="" type="checkbox"/> Enclosed <input type="checkbox"/> None required (government interest not affecting title)
9. Signature: _____ /Christopher P. Harris/ <u>C.P.H.</u> Signature Date Christopher P. Harris Name of Person Signing	8. Payment information Deposit Account Number <u>20-0090</u> Authorized User Name <u>Christopher P. Harris</u> Total number of pages including cover sheet, attachments, and documents: <u>7</u>

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Date

Christopher P. Harris
Name of Person Signing

Total number of pages including cover
sheet, attachments, and documents:

7

Applications:

10100203

Patents:

5079555

5202776

5384573

5623360

6608721

6735346

7062174

7130292

7509048

7720226

7756424

7768709

CERTIFICATE OF MERGER

MERGING

NORTHROP GRUMMAN SPACE & MISSION SYSTEMS CORP.

INTO

NORTHROP GRUMMAN SYSTEMS CORPORATION

Pursuant to Section 252(c) of the Delaware General Corporation Law, the undersigned corporation does hereby certify:

FIRST: The name and state of incorporation of each of the constituent corporations in the merger are as follows:

<u>Name</u>	<u>State of Domicile</u>
Northrop Grumman Space & Mission Systems Corp.	Ohio
Northrop Grumman Systems Corporation	Delaware

SECOND: An Agreement and Plan of Merger among the parties to the merger has been approved, adopted, certified, executed and acknowledged by each of the constituent corporations in accordance with the requirements of Section 252(c) of the Delaware General Corporation Law.

THIRD: The name of the surviving corporation is Northrop Grumman Systems Corporation.

FOURTH: The certificate of incorporation of Northrop Grumman Systems Corporation shall be the certificate of incorporation of the surviving corporation.

FIFTH: The executed Agreement and Plan of Merger is on file at the principal place of business of Northrop Grumman Systems Corporation, the address of which is c/o Northrop Grumman Corporation, 1840 Century Park East, Los Angeles, California 90067.

SIXTH: A copy of the Agreement and Plan of Merger will be furnished by the surviving corporation, on request and without cost, to any stockholder of any constituent corporation.

SEVENTH: The authorized capital stock of Northrop Grumman Space & Mission Systems Corp. currently consists of 1,000 shares of common stock, with a par value of \$.001 per share.

EIGHTH: This Certificate of Merger, and the merger referenced herein, shall be effective on December 31, 2009 at 11:59 p.m. (local time in Wilmington, Delaware).

IN WITNESS WHEREOF, the undersigned has caused this Certificate of Merger to be executed by its duly authorized officer this 11th day of December, 2009.

NORTHROP GRUMMAN SYSTEMS CORPORATION

By: Kathleen M. Salmas
Kathleen M. Salmas
Secretary

Delaware

PAGE 1

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF OWNERSHIP, WHICH MERGES:

"NORTHROP GRUMMAN SPACE & MISSION SYSTEMS CORP.", AN OHIO CORPORATION,

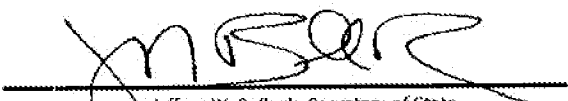
WITH AND INTO "NORTHROP GRUMMAN SYSTEMS CORPORATION" UNDER THE NAME OF "NORTHROP GRUMMAN SYSTEMS CORPORATION", A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE FOURTEENTH DAY OF DECEMBER, A.D. 2009, AT 7:44 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF OWNERSHIP IS THE THIRTY-FIRST DAY OF DECEMBER, A.D. 2009, AT 11:59 O'CLOCK P.M.

2056806 8100M

100738922




Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 8110638

DATE: 07-13-10

CERTIFICATE OF MERGER

MERGING

NORTHROP GRUMMAN SPACE & MISSION SYSTEMS CORP.

INTO

NORTHROP GRUMMAN SYSTEMS CORPORATION

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NORTHROP GRUMMAN SYSTEMS CORPORATION

By: Kathleen M. Salmas
Kathleen M. Salmas
Secretary